

**Date:** October 15, 2002

**File Ref:** 3600

**To:** Bureau of Fisheries and Habitat Protection

**From:** Thomas (Skip) Sommerfeldt  
Fisheries Biologist - Senior, Park Falls

**Subject:** **2000 Lake Survey Summary - Club Lake, Bayfield County**  
(T44N, R6W, sec. 13; WBIC - 2733900)  
St. Croix/Upper Chippewa GMU



Title: **2000 Lake Survey Summary Report -- Club Lake, Bayfield County, WI**

Lake Characteristics: 83 acres, max. depth of 22 feet. Drainage lake in southeast Bayfield County. No development, completely surrounded by USFS land, undeveloped access. Stained water with low fertility.

Date of Report: October 15, 2002

Investigator/Author: Thomas (Skip) Sommerfeldt, Fisheries Biologist - Senior  
Chequamegon/Nicolet National Forest Contract Fish Program

Survey Objective/Background Information:

Inventory the fishery, identify management problems, and provide future management direction. No previous fisheries information has been collected and no fish stocking has been documented.

Field Work:	Spring Electro-fishing (1.0 hour, 0.2 for panfish)	May 15, 2000
	Panfish Fyke-Net Survey (11 net-days)	June 5 - 8, 2000
	Fall Electro-fishing (1.1 hours, 0.2 for panfish)	September 21, 2000

Findings: The following fish species were collected during the 2000 survey on Club Lake:

Largemouth bass	( <i>Micropterus salmoides</i> )
Northern pike	( <i>Esox lucius</i> )
White sucker	( <i>Catostomus commersoni</i> )
Bluegill	( <i>Lepomis macrochirus</i> )
Black crappie	( <i>Pomoxis nigromaculatus</i> )
Pumpkinseed	( <i>Lepomis gibbosus</i> )
Yellow perch	( <i>Perca flavescens</i> )
Yellow bullhead	( <i>Ameiurus natalis</i> )
Brown bullhead	( <i>Ameiurus nebulosus</i> )
Golden shiner	( <i>Notemigonus crysoleucas</i> )
Creek chub	( <i>Semotilus atromaculatus</i> )
Mudminnow	( <i>Umbra limi</i> )

Largemouth bass were the most numerous gamefish species sampled in the 2000 survey. A total of 135 bass were measured and they ranged from 1.9 to 18.6 inches in length. The spring shocker run produced a catch-per-effort (CPE) of 49 bass per hour and a PSD<sub>12</sub> of 61% (Figure 1). Natural reproduction was considered good and recruitment to larger size-classes was consistent and stable to the 14-inch size. Growth rates were average for Wisconsin (Figure 2), with bass reaching a mean length of 14.4 inches after 6 summers of growth. Overall, largemouth bass were maintaining a good-quality, self-sustaining population.

A total of 23 northern pike were sampled and they ranged in length from 12.0 to 32.9 inches. The pike had an overall PSD<sub>21</sub> of 67%, with most fish in the 20 to 24-inch size (Figure 3). Growth rates were average to slightly below average (Figure 4), with fish reaching a mean length of 23.1 inches after 6 summers of growth. Natural reproduction was considered low and recruitment was erratic, but both appeared sufficient to maintain the low to moderate density population. A strong 1994 year class (age 6) made up a large proportion (43%) of the pike sampled in the survey.

The panfishery consisted primarily of bluegill and they represented 73% of the total panfish catch in 2000. Bluegill were considered moderate to high in density and the size structure of the population was good. The June fyke-net effort produced a CPE of 97 bluegill per net-day, with a PSD<sub>6</sub> of 93% and a RSD<sub>7</sub> of 80% (Figure 5). Growth rates were above average for ages 3 through 6, but growth leveled off after age 7 and about an 8-inch length (Figure 6).

Black crappie comprised 26% of the panfish catch and were also maintaining a good quality population in the lake. The June netting effort produced a CPE of 40 per net-day, with a PSD<sub>8</sub> of 71%. Growth was near average through age 3 but below average thereafter (Figure 7). Crappie did attain a respectable 10-inch length by age 8. Yellow perch represented about 1% of the panfish catch and ranged in length from 2.8 to 8.6 inches. Only 1 pumpkinseed was sampled and that individual measured 7.5 inches long.

Yellow and brown bullhead were maintaining low to moderate density populations, with a high-quality size structure (most individuals were between 9 and 13 inches in length). Only 2 white sucker were sampled during the survey and they were 20.0 and 22.6 inches in length. Other non-game fish species and their relative abundance included golden shiner (present), creek chub (present), and mudminnow (present).

In summary, the 2000 survey on Club Lake found a fairly well-balanced fishery. Largemouth bass were the primary gamefish, with a low to moderate density of northern pike. The bass and northern pike populations were self-sustaining, fish experienced good growth rates, and quality and trophy size fish were available to the angler. Bluegill and black crappie were the predominant panfish, with much lower densities of yellow perch and pumpkinseed. Growth rates were generally average to below average but good numbers of quality size bluegill and crappie were found. Yellow and brown bullhead were present in low to moderate density and most individuals were between 9 and 13 inches in length.

The management goal for Club Lake should be to maintain the balanced predator-prey relationship. The lake should be managed primarily as a largemouth bass and panfish fishery, with secondary emphasis on northern pike. The northern pike were an integral part of the fishery but no extra protection or enhancement should be used to increase their numbers (with the small size of the lake and limited forage, there exists a chance to see a hammer-handle fishery if numbers become too high). At present, there were no major management problems and the current harvest regulations were considered sufficient to sustain a quality fishery. Shoreline and littoral habitat were adequate, as there was a good mix of aquatic vegetation, woody structure, and rock/gravel substrate. The littoral area did contain a high abundance of water shield but this did not appear to adversely affect the fishery. Management objectives should include appropriate riparian management to ensure future natural tree-falls into the lake and limit access to carry-in only to help preserve the fishery and aesthetic quality of this undeveloped lake.

#### Management Recommendations:

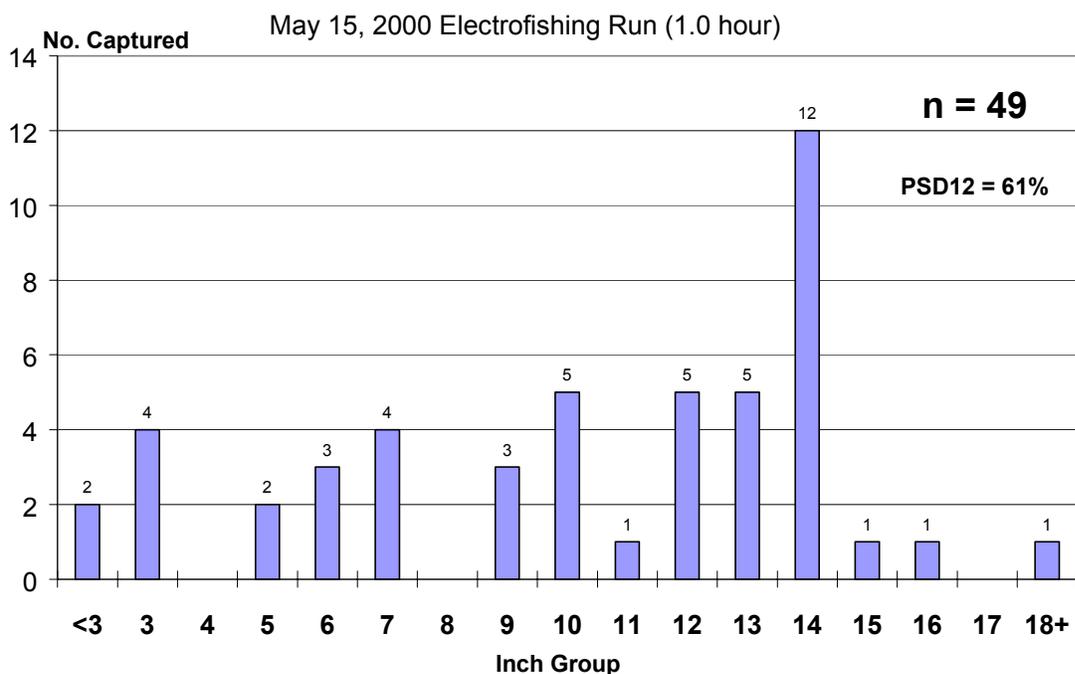
1. Manage Club Lake primarily for largemouth bass and panfish, with secondary emphasis on northern pike (meaning no stocking or special regulations to increase their numbers). Specific management objectives are as follows:
  - a. Largemouth bass - maintain a spring electrofishing CPE near 50 bass per hour (>6") and a PSD<sub>12</sub> of greater than 40%.
  - b. Northern pike - maintain a spring electrofishing CPE of less than 7 pike per hour and the PSD<sub>21</sub> near 60%.
  - c. Panfish (bluegill, black crappie, yellow perch, and rock bass) - maintain a combined spring electrofishing CPE near 400 fish per hour and the PSD<sub>x</sub> values near 40%.

2. The fishery was considered well-balanced and no supplemental stocking of any species was recommended at the present time. The current harvest regulation for bass of a 14-inch minimum and 5 daily bag was considered sufficient to maintain and enhance the bass population. Ideally, a reduced daily bag limit to 2 fish would seem more appropriate for bass in these small, softwater lakes. (However, any change should be delayed until the current harvest regulations are evaluated. The 14-inch minimum has only been in effect since June 1998 and fisheries are still responding to this change). The panfish regulation of a 25 bag and no size limit was adequate for this lake and access situation, but a 10 daily bag would be preferable on these small, softwater lakes. The current regulation for northern pike (no minimum, 5 bag) was appropriate as well.
3. Maintain the wild nature of the lake by limiting any shoreline development and by following the guidelines for riparian management zones as described in "Wisconsin's Forestry Best Management Practices for Water Quality" (PUB-FR-093 95).
4. Limit access to carry-in only to help preserve the aesthetic quality of this undeveloped lake.
5. Conduct periodic monitoring of the fishery to assess its status and adherence to the above objectives (1.a,b,c). A spring electrofishing run every 3 years is recommended and the USFS contract fish program will incorporate this sampling into its work program.

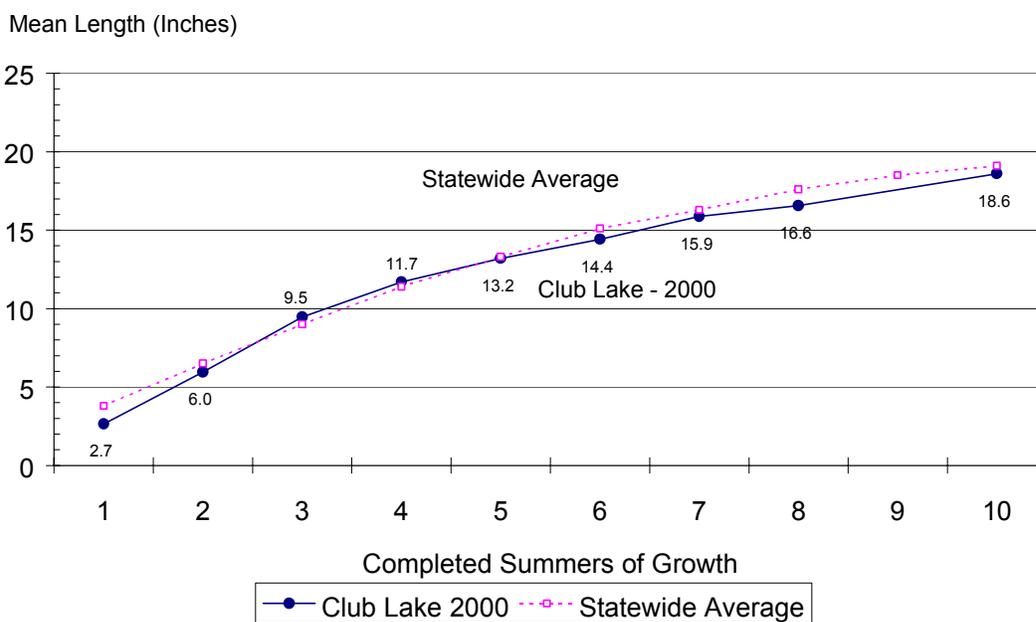
Table 1. Comparison of 2000 Fish Survey Catch Statistics.  
Club Lake, Bayfield County

	LMB	N Pike	Bluegill	B Crappie	Y Perch	Pmpknsd	Bullhead
<b>Spring Shocking</b>							
(May 15: bass/panfish assess.)							
1.0 hour - 1 boat, entire shore							
<b>CPE</b> (number per hour)	<b>49/hr</b>	<b>5.0/hr</b>	<b>575/hr</b>	<b>24/hr</b>	<b>12/hr</b>	<b>- -</b>	<b>- -</b>
<b>Size/PSDx</b>	<b>61%</b> (>12")	<b>2 of 5</b> (>21")	<b>46%</b> (>6")	<b>67%</b> (>8")	<b>25%</b> (>7")	<b>&gt;6"</b>	
<b>June Fyke Netting</b>							
(Panfish assessment)							
June 5 - 8 -- 11 net-days							
<b>CPE</b> (number per net-day)	<b>1.0/n-d</b>	<b>1.4/n-d</b>	<b>97/n-d</b>	<b>40/n-d</b>	<b>0.2/n-d</b>	<b>0.1/n-d</b>	<b>20/n-d</b>
<b>Size/PSDx</b>	<b>27%</b> (>12")	<b>67%</b> (>21")	<b>93%</b> (>6")	<b>71%</b> (>8")	<b>100%</b> (>7")	<b>100%</b> (>6")	<b>87%</b> (>8")
<b>Fall Shocking</b>							
(Sept. 21: Fall recruit, survey)							
1.1 hours - 1 boat, entire shore							
<b>CPE</b> (number per hour)	<b>68/hr</b>	<b>2.7/hr</b>	<b>780/hr</b>	<b>60/hr</b>	<b>10/hr</b>	<b>- -</b>	<b>Present</b>
<b>Size/PSDx</b>	<b>32%</b> (>12")	<b>67%</b> (>21")	<b>14%</b> (>6")	<b>17%</b> (>8")	<b>100%</b> (>7")	<b>&gt;6"</b>	

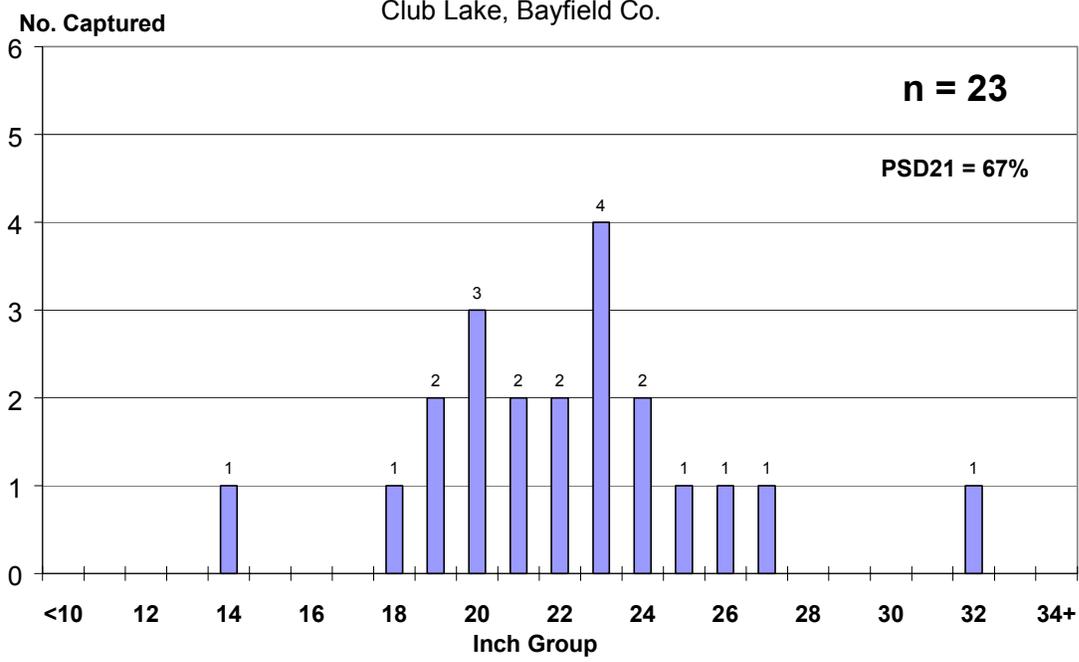
**Figure 1. LMB Length Frequency - Club Lake, Bayfield Co.**



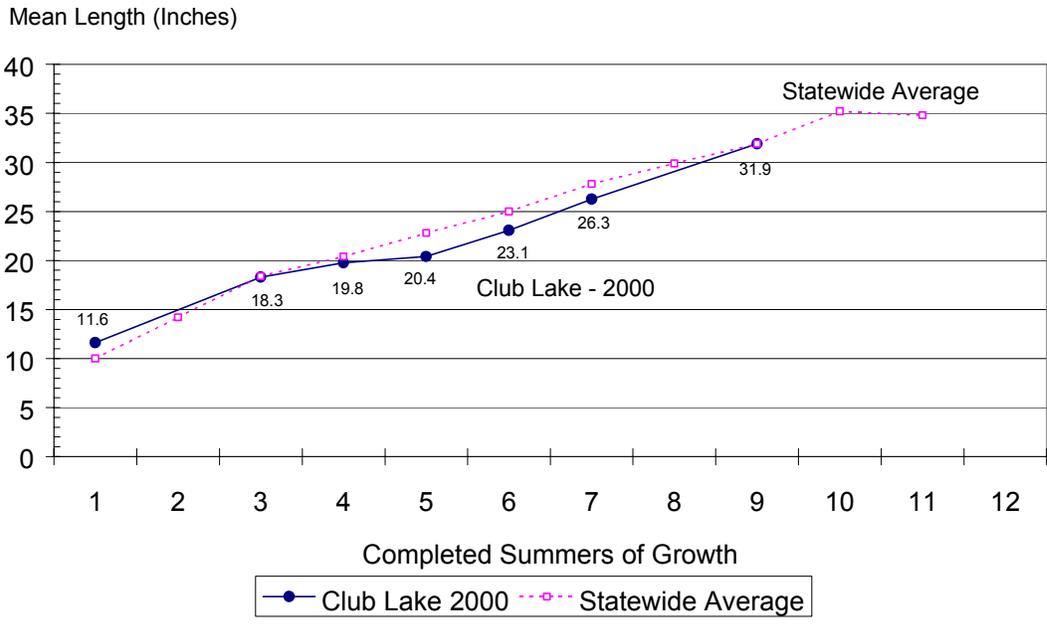
**Figure 2. Largemouth Bass Growth Rates  
Club Lake, Bayfield Co.**



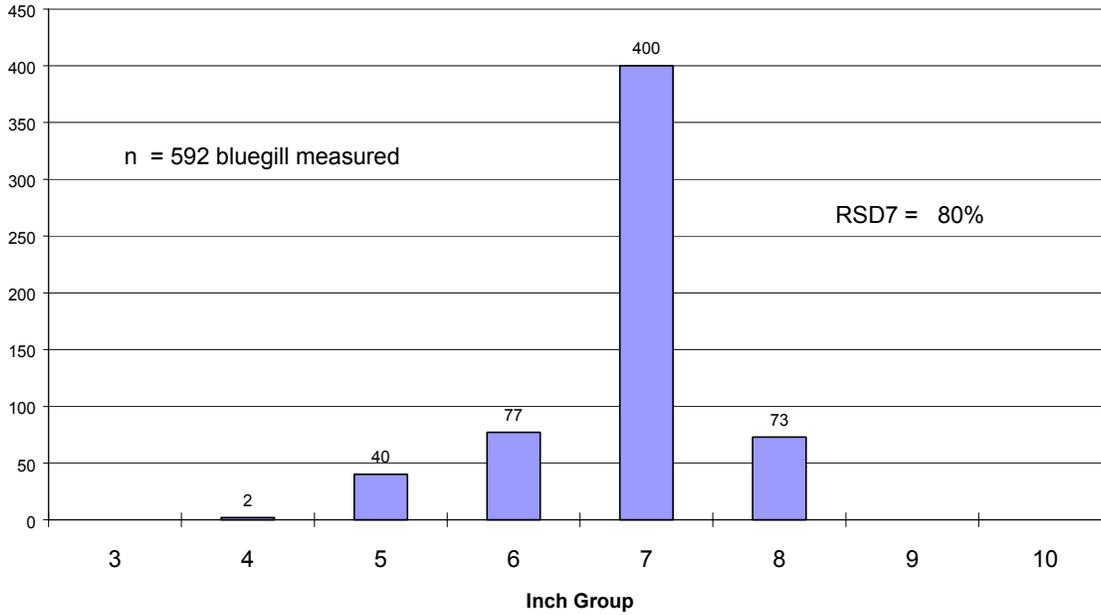
**Figure 3. N Pike Length Frequency - 2000 Survey Totals**



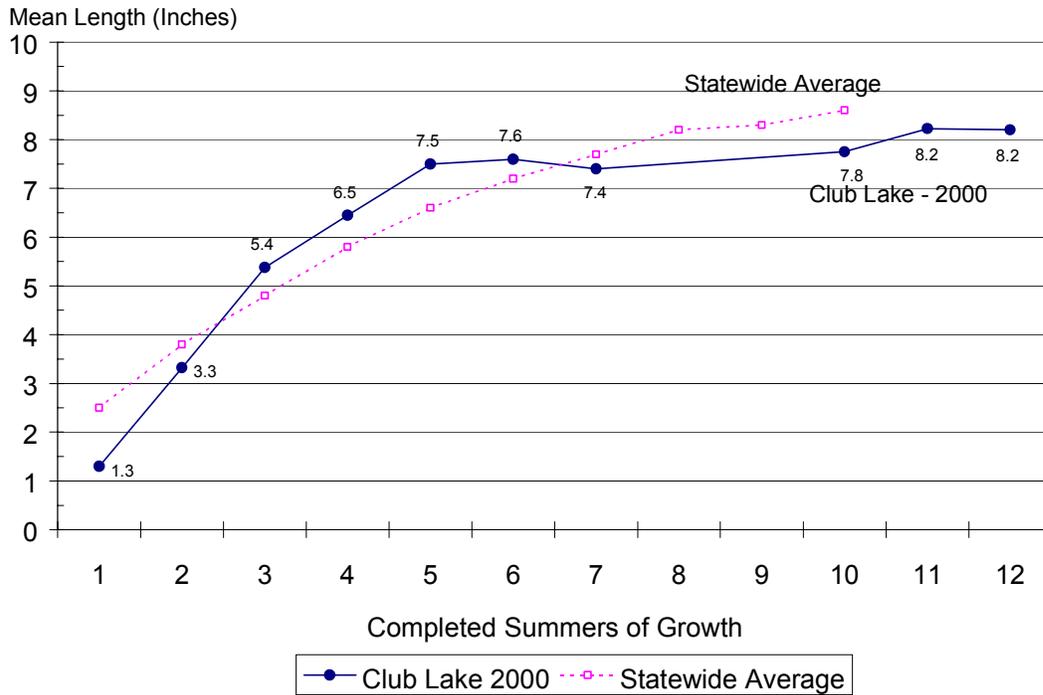
**Figure 4. Northern Pike Growth Rates  
Club Lake, Bayfield Co.**



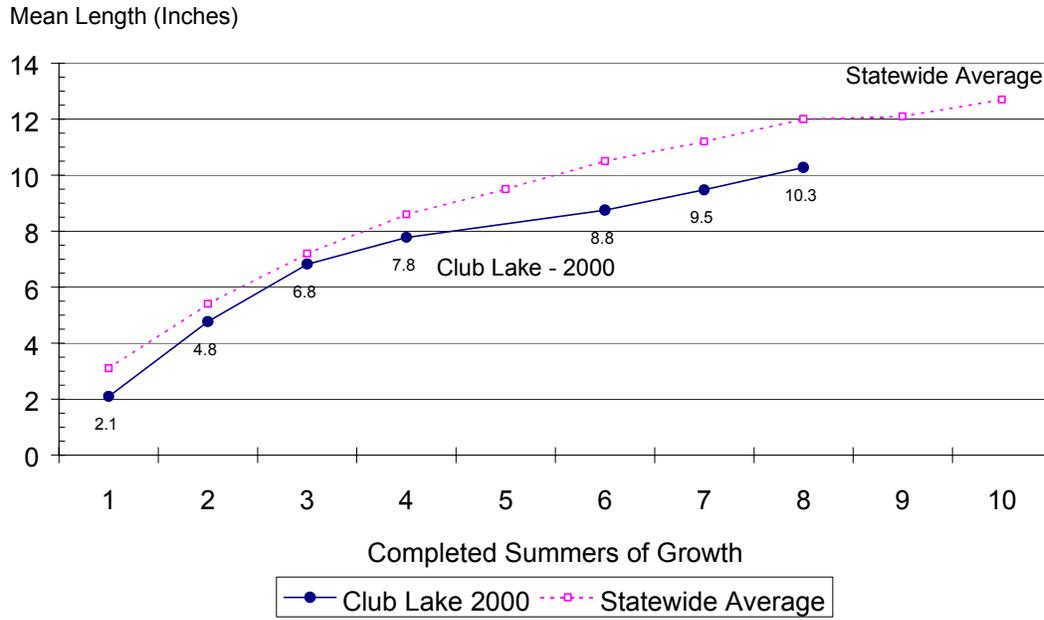
**Figure 5. Length frequency of bluegill - June 2000 Fyke Netting  
Club Lake, Bayfield Co.**



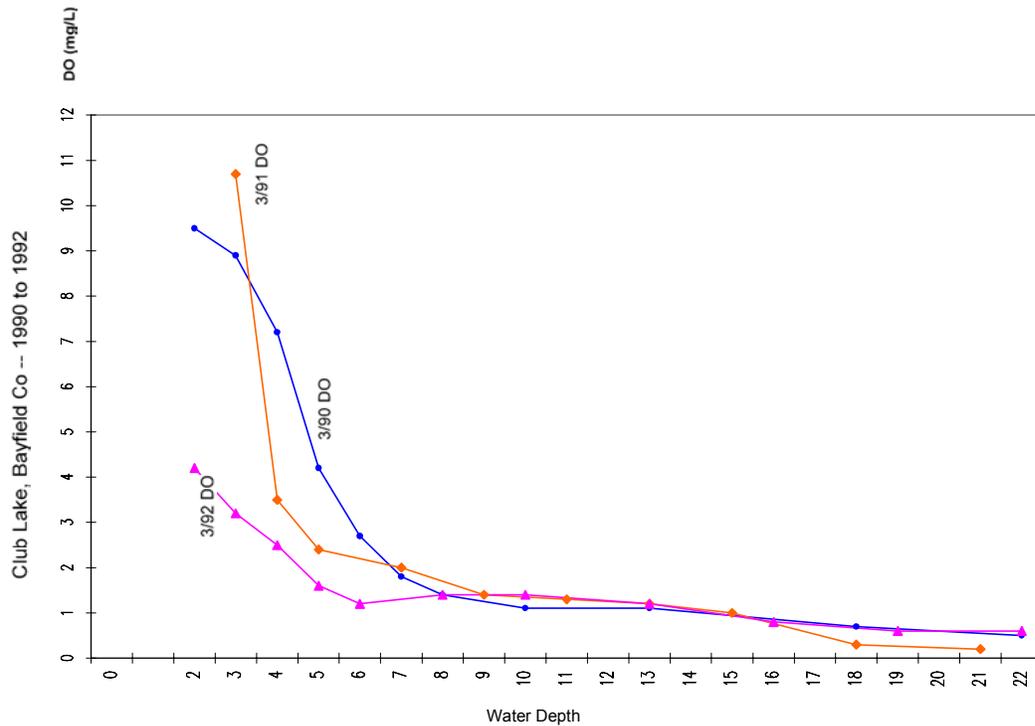
**Figure 6. Bluegill Growth Rates - Club Lake, Bayfield Co.**



**Figure 7. Black Crappie Growth Rates  
Club Lake, Bayfield Co.**



**Figure 8. Winter DO Profile**



# Club Lake, Bayfield Co.

## 2000 Fish Survey Totals

Species	Spring Netting	Spring BS	Summer Netting	Fall BS	Totals
Largemouth Bass Mode; Length range		49 14.2; 2.9 - 18.4	11 6.0 - 18.9	75 2.2, 5.7, 8.7; 1.9 - 16.9	<b>135</b>
Northern Pike Mode; Length range		5 12.0 - 23.9	15 14.0 - 32.9	3 19.0- 25.4	<b>23</b>
Walleye Length range					
Sucker Length range			2 20.0 - 22.6		<b>2</b>
Bluegill Mode; Length range		115 5.7; 2.7- 8.2	1,063 7.5; 4.0 - 8.6	156 4.2; 1.3 - 8.4	<b>1,334</b>
Black Crappie Mode; Length range		24 6.6 - 10.7	441 5.2, 9.1; 4.4 - 11.1	12 2.1 - 8.3	<b>477</b>
Pumpkinseed Mode; Length range			1 7.5		<b>1</b>
Yellow Perch Mode; Length range		12 2.8 - 8.2	2 7.3 - 7.6	2 2.8 - 8.6	<b>16</b>
Rock Bass Length range					
Golden shiner		P			
Bullhead		C			
Creek chub				P	
Bluntnose minnow					
Mudminnow		P			
Sculpin					
tadpole madtom					
Crayfish					

County		Water					Date:				Gear: Survey Totals					
Bayfield Co.		Club Lake,					2000				Somm/Bunde/Post					
Size Range Inches	Total LMB	Total N Pike	NP Spg Net	NP Sprg BS	NP Sum Net	NP Fall BS	LMB Spg Net	LMB Sprg BS	LMB Sum Fyke	LMB Fall BS	Size Range Inches	Total NP	NP Spg Net	NP Sprg BS	NP Sum Net	NP Fall BS
<3.0	19							2		17	27.0 - 27.4					
3.0 - 3.4	5							4		1	27.5 - 27.9	1			1	
3.5 - 3.9	2									2	28.0 - 28.4					
4.0 - 4.4											28.5 - 28.9					
4.5 - 4.9	2									2	29.0 - 29.4					
5.0 - 5.4	5									5	29.5 - 29.9					
5.5 - 5.9	9							2		7	30.0 - 30.4					
6.0 - 6.4	5							2	1	2	30.5 - 30.9					
6.5 - 6.9	2							1		1	31.0 - 31.4					
7.0 - 7.4	4							3	1		31.5 - 31.9					
7.5 - 7.9	3							1	1	1	32.0 - 32.4					
8.0 - 8.4	5								2	3	32.5 - 32.9	1			1	
8.5 - 8.9	9									9	33.0 - 33.4					
9.0 - 9.4	5							1		4	33.5 - 33.9					
9.5 - 9.9	5							2	1	2	34.0 - 34.4					
10.0 - 10.4	6							3	1	2	34.5 - 34.9					
10.5 - 10.9	3							2		1	35.0 - 35.4					
11.0 - 11.4	3									3	35.5 - 35.9					
11.5 - 11.9	2							1	1		36.0 - 36.4					
12.0 - 12.4	4	1		1				4			36.5 - 36.9					
12.5 - 12.9	2	1		1				1	1		37.0 - 37.4					
13.0 - 13.4											37.5 - 37.9					
13.5 - 13.9	8							5	1	2	38.0 - 38.4					
14.0 - 14.4	10	1			1			7		3	38.5 - 38.9					
14.5 - 14.9	10							5		5	39.0 - 39.4					
15.0 - 15.4	2									2	39.5 - 39.9					
15.5 - 15.9	1							1			40.0 - 40.9					
16.0 - 16.4	1							1			41.0 - 41.9					
16.5 - 16.9	1									1	42.0 - 42.9					
17.0 - 17.4											43.0 - 43.9					
17.5 - 17.9											44.0 - 44.9					
18.0 - 18.4	1							1			45.0 - 45.9					
18.5 - 18.9	1	1			1				1		46.0 - 46.9					
19.0 - 19.4		2			1	1					47.0 - 47.9					
19.5 - 19.9											48.0 - 48.9					
20.0 - 20.4		1			1						49.0 - 49.9					
20.5 - 20.9		2		1	1						50.0 - 50.9					
21.0 - 21.4		1			1						51.0 - 51.9					
21.5 - 21.9		1		1							52.0 - 52.9					
22.0 - 22.4		2			2						53.0 - 53.9					
22.5 - 22.9											54.0 - 54.9					
23.0 - 23.4		2			2						55.0 - 55.9					
23.5 - 23.9		2		1		1					56.0 - 56.9					
24.0 - 24.4		2			2						57.0 - 57.9					
24.5 - 24.9											58.0 - 58.9					
25.0 - 25.4		1				1					59.0 - 59.9					
25.5 - 25.9											60.0+					
26.0 - 26.4		1			1											
26.5 - 26.9																
<b>TOTALS</b>	<b>135</b>							<b>49</b>	<b>11</b>	<b>75</b>	<b>TOTALS</b>	<b>23</b>		<b>5</b>	<b>15</b>	<b>3</b>

OBSERVATIONS:

LMB PSD12 = 44%  
(6" stock size)

NP PSD21 = 67%  
(14" stock size)